NewsRelease

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-0001

Michael Braukus
Headquarters, Washington, DC
(Phone: 202/358-1979)

February 23, 2000

Keith Henry
Langley Research Center, Hampton, VA
(Phone: 757/864-6120)

RELEASE: 00-31

TINY HEARTS MONITORED BY NASA TECHNOLOGY

The results are in. A NASA technology originally used to measure airflow over airplane wings has been successfully used to develop a portable, non-invasive, easy-to-use fetal heart monitor.

The new clinically proven fetal heart monitor takes advantage of aerospace technology to make it more affordable, portable and easy to use by expectant mothers in their own homes. What's more, it "listens, documents and stores" fetal heart-rate data without injecting energy into the womb, making it totally non-invasive.

A team of aerospace researchers from NASA's Langley Research Center, Hampton, VA, worked with Veatronics, Inc., of Charlotte, NC, to convert the technology to this innovative medical application. NASA granted the company a license to market one or more commercial products based on the technology.

"Because the material we used for wing surface measurements is flexible, it is ideally suited to fit over the curved surface of a maternal abdomen for fetal testing," said Allan Zuckerwar of Langley's Advanced Measurement and Diagnostics Branch.

Current fetal heart-monitoring devices generally work well but cost many thousands of dollars and can only be used in a clinic or doctor's office.

NASA developed the portable technology at the suggestion of a medical doctor in a remote area that suffers from a lack of appropriate health care. For several reasons, when expectant mothers do not receive necessary prenatal care, the result is often increased fetal mortality.

In its present form, an at-home patient would strap a wide, soft belt embedded with sensors over her belly, tune a computerized control device to hear the fetal heartbeat and send the signal directly to her doctor's office via the Internet. The device is as easy to use as tuning a radio, which one doctor considers essential to its ultimate success.

"I think the portability of this technology will make it very useful," said Dr. Kevin Gomez, a specialist in maternal fetal medicine at Atlanta Perinatal Associates, Atlanta, GA. "Instead of having patients travel to where the technology is, have the technology travel to the patients."

-more-

Dr. Gomez led a recently completed series of NASA-sponsored clinical trials at Morehouse School of Medicine in Atlanta. Clinical trials also were sponsored at Eastern Virginia Medical School, Norfolk, VA, and at Encino/Tarzana Medical Center, Encino, CA. Among other things, the trials are expected to establish that the NASA acoustic monitor meets federal Food and Drug Administration guidelines. Results are being compared to those recorded via Doppler ultrasound and scalp-electrode monitors, and also to standard accepted measurements.

The Morehouse trials, along with continuing investigations at Atlanta Perinatal, proved to Dr. Gomez's satisfaction that the technology offers an easy-to-use alternative to visits to the doctor's office. This is especially important, he explained, for high-risk patients who should be examined twice a week or more, or for patients who cannot easily travel. All of Dr. Gomez's patients are considered high-risk, due to maternal complications of pregnancy or fetal abnormalities.

Even perfectly healthy patients may not be able to afford the time or money for periodic trips to the doctor -- or may find themselves ordered to long periods of bed rest.

The new method of checking fetal heart behavior might actually prove to be a better way of monitoring some pregnancies than technologies now in use. In addition, the system could provide objective data to complement information gained from other methods.

- end -

Editor's Note: B-roll and soundbite video is available that includes the technology's original aviation application and its use with fetal heart-monitor patients. Contact Ivelisse Gilman of Langley Public Affairs at (757) 864-5036 or i.gilman@larc.nasa.gov.